

# The Eurasian Wild Boar in Pakistan Agriculture

by Joe E. Brooks

The Eurasian wild boar, *Sus scrofa*, is the second most destructive animal to food crops in Pakistan. The damage done by it is exceeded only by the combined damages that rats and mice do to crops before harvest and to stored foods after harvest. A large, fierce, wily, smart, and aggressive animal, it is almost impossible to keep the boar out of field crops when it makes up its mind to feed there. It can maim and even kill humans when threatened or suddenly surprised. Not only does it exert a powerful constraint on the production of maize and soft-rind, high-sugar-content sugarcane, it also damages a variety of other crops, including wheat, sorghum, groundnut, melon, peas, and potato.

## Damage figures

Some damage figures, based upon surveys conducted by the Vertebrate Pest Control Project in 1985-86, are presented in the table below. Wild boars are the most important vertebrate pest species in sugarcane, wheat, and maize, but are of lesser importance in groundnut. Sugarcane and maize suffered the most intensive damage.

Farmers lack any effective means of reducing damage to their crops by the wild boar. Several methods have been used, such as guarding the fields at night with lanterns, dogs and noise-makers. Lethal electrical fences have been erected but these also kill other animals and humans. Poisoning with powerful toxicants like sodium fluoroacetate and aldicarb has been done but these are too hazardous for farmer-use. There is a need to develop a simple, inexpensive, relatively safe and effective method of reducing wild boar damage to field crops. In order to do this, however, some basic knowledge about the animals' biology, ecology and behavior in the Pakistan agroecosystem needs to be known.

## Cooperative study

A cooperative research study was undertaken by the GOP/USAID/DWRC Vertebrate Pest Control Project and the Department of Entomology, University of Agriculture, Faisalabad. The objectives of this study were to describe the basic biology and behavior of wild boar living in crop fields in the Faisalabad area. The

study was conducted by collecting almost 300 wild boar by hunting them. Killed specimens were measured, weighed, sexed, and necropsied. Eyes were removed for aging studies, lower jaws were collected and preserved, stomach samples taken and reproductive tracts of both males and females examined and preserved in formalin. The collected data were entered into a computer database, summarized, and analyzed.

The wild boar specimens were aged from the eruption patterns of teeth in the lower jaws up to about 6 years of age. The weights of the eye lens gave another check on aging by tooth eruption. Half the animals of both sexes were less than 1 year old; one-fourth were 1 to 2 years old, and another one-fourth were older than 2 years. This indicates a short life expectancy and a high mortality rate. The oldest animals aged were one male and one female, 6 years old.

## Mortality

The sex ratio of the collected sample was heavily in favor of females (146 females to 100 males). This suggests that mortality was heavier in males than females, due perhaps to their fighting during breeding season and their tendency to travel alone when foraging for food. Younger males in the age group 5 to 12 months were particularly absent, indicative that older males may have been killing them before they attained sexual maturity.

The size of wild boar from Pakistan is about average for the species. They are larger than European wild boar introduced into the eastern United States but somewhat smaller than wild boar from the U.S.S.R. Males grow to a greater body length and a heavier weight than females. The largest male measured 163 cm in head and body length and stood 92 cm tall at the shoulder. The heaviest male weighed 135 kg (297 lbs). The longest female measured 143 cm in length and the heaviest weighed 85 kg.

## Breeding

The young animals of both sexes were found to attain sexual maturity at the age of about six months. Thus animals born in the months of



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April, May and June were found to be in breeding capability by the following December/January.

The breeding season was found to begin in late December and mating behavior reached a peak in late January by dating from the visible pregnancies seen in females in February, March and April. Gestation takes between 115 to 119 days. Most of the pregnant females littered in April through August, with the peak of births occurring in April, May and June. A few pregnant females were seen in September and there was data that indicated that there is a minor breeding effort in the post-monsoon months. Young animals were seen to have been born in every month, but 72% were born in the 5 months of April through August. The average number of young per litter was 5.8 in a sample of 30 females. It ranged from 1 to 10. Older, larger females had larger litters than younger females, averaging 6.5 young versus 4.8.

## Habitat types

Wild boar in the Faisalabad area frequent mainly three major habitat types in which they hide during the day and/or forage at night: sugarcane fields, low-lying areas containing dense growths of *Saccharum* species or *Typha* species, and thickets of mesquite/acacia.

Ninety-six percent of the animals collected were taken from these three habitats. In the period when all sugarcane and wheat fields have been harvested, roughly from May until August, and until maize, sorghum and sugarcane grow tall enough to provide shelter and hiding places, the wild boar retreat to the dense growths of *Saccharum* and *Typha* or into mesquite/acacia thickets, if water is available nearby. This may be the critical period for the animals during the annual cycle. It also coincides, in part, with the main farrowing period.

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Damage by Wild Boars to Field Crops in Some Districts in Pakistan

Crop type	No. fields	No. fields with damage	Percent Crop damage	Extrapolated estimated yield loss (mt)
Sugarcane	81	49	11.3 a	392,000 b
Wheat	103	31	3.0	25,600 b
Maize	87	44	6.7	4,930 b
Groundnut	164	32	0.9	5,160 c

a. Damage estimates based upon data from 28 fields.

b. Based upon 1983-84 production figures for Faisalabad District.

c. Overall yield loss in Rawalpindi, Chakwal, and Attock Districts based upon 1983-84 production figures (Source: Agricultural Statistics of Pakistan, 1984).



Almost 300 wild boar were collected for the study which was designed to describe the biology and behavior of wild boar in the Faisalabad area.

## Wild Boar (Contd. from page 2)

### Group size

The size of groups that the wild boar were observed to travel in were obtained from 85 field observations taken from June to December 1988. The average size of group was 5.2, generally one or more adult females with their young-of-the-year and an occasional yearling.

Old males normally move singly but males up to the age of about 18 months move with the family. The groups ranged from 2 to 28 in number. The largest group included 2 males and 4 females with 22 young of varying ages.

### Control measures

What are the implications for control of this pest? The young age at which sexual maturity in both sexes takes place, the year-round breeding capabilities, the relatively large litter sizes, and the possibility of two litters per year indicate an animal with a high reproductive potential. This high reproductive potential, accompanied by high mobility (wild boar are capable of wide-ranging nightly movement in search of food) and a lack of effective control techniques, makes this animal a formidable pest species in the Pakistan agroecosystem.

A comprehensive program of basic research on its biology, combined with evaluation of candidate toxicants, baits and bait delivery systems, leading to development of control strategies and methods, is sorely needed. In a study of feral pigs on Isla Santiago, Galapagos Islands, it was concluded, based upon cost and efficiency, that poisoning was the best method of control. Cost of removal per pig by poisoning was estimated to be about eleven times cheaper than shooting, the second most efficient control method. Our researches are therefore directed to this end.

### Poisoning

Poisoning trials of wild boar have been carried out by the VPC Project in an area southeast of Fatch Jang. Here the wild boar live in hiding places in the ravines and canyons of a small range of semi-arid mountains. They forage out into wheat, sorghum and maize crops on the surrounding plains in crop seasons, causing heavy damage. In attempts to alleviate the damage, wild boar have been poisoned with anticoagulant materials, like warfarin and coumatetralyl, the active ingredients of rodenticidal baits. Wild boar readily consume these poisons because there are no poisoning symptoms associated with their consumption. Animals simply grow weaker in a few days and begin to bleed internally and, occasionally, externally. They die quietly.

Warfarin and coumatetralyl have both given excellent results when tried. There are several disadvantages, however. The wild boar consume the baits in quantity for 6 to 10 nights because the poisons are slow to act, necessitating a large amount of bait to be placed. The baits have been attractive to jackals, dogs, and porcupines also, giving some mortality to these non-target species. Attempts are being made to design a more target-specific bait delivery system to overcome this last disadvantage.